

Standard Reco Jets and
MET

Standard Reco Leptons
vs

Particle Flow Leptons

Single Lepton

Sample	e				mu			
	V+j pt10	SL opt:pt10	SL opt:pt5	SL opt:pt2	V+j pt10	SL opt:pt10	SL opt:pt5	SL opt:pt2
LM0 SR SRL	115.066	137.749	140.698	140.95	140.427	164.973	197.862	212.978
LM0 SR PFL	137.244	122.769	125.388	125.641	128.823	124.282	148.693	158.977
LMI SR SRL	15.28	18.92	19.87	19.91	18.98	22.12	29.98	32.97
LMI SR PFL	18.07	17.10	17.98	18.01	17.64	18.35	24.87	27.23
BB SR SRL	0	0	0	0	0	0	0	6578.15
BB SR PFL	0	0	0	0	0	0	0	0
QCD 250 SR SRL	0	0	0	0	0	0	0	0
QCD 250 SR PFL	0	0	0	0	0	0	0	0
QCD 500 SR SRL	0	3.43	6.86	6.86	0	6.86	20.6	41.20
QCD 500 SR PFL	0	3.43	6.86	6.86	3.43	6.86	20.6	37.77
QCD 1000 SR SRL	0.18	0.19	0.21	0.24	0.03	0.33	1.22	2.73
QCD 1000 SR PFL	0.21	0.17	0.18	0.20	0.11	0.19	0.82	1.74
TTBar SR SRL	114.45	137.57	139.189	139.24	109.83	124.64	138.64	143.38
TTBar SR PFL	125.07	108.61	110.14	110.2	103.20	98.66	110.26	113.851
VVjets SR SRL	685.45	738.69	738.69	738.69	266.19	286.16	326.09	346.05
VVjets SR PFL	705.41	692.1	692.1	692.1	272.85	259.54	292.81	306.12
Sig LM0 SR SRL	4.067994	4.64383448	4.7296478	4.73790212	7.2414881	8.06918971	8.97012833	2.52553756
Sig LM0 SR PFL	4.76183	4.32889433	4.4076446	4.41631981	6.6120485	6.50299052	7.21700144	7.41652591
Sig LMI SR SRL	0.540203	0.63783656	0.667942	0.66925599	0.9787537	1.08193751	1.35915157	0.39096514
Sig LMI SR PFL	0.626958	0.60295427	0.6320338	0.63305704	0.9054015	0.96015413	1.20709667	1.27032213

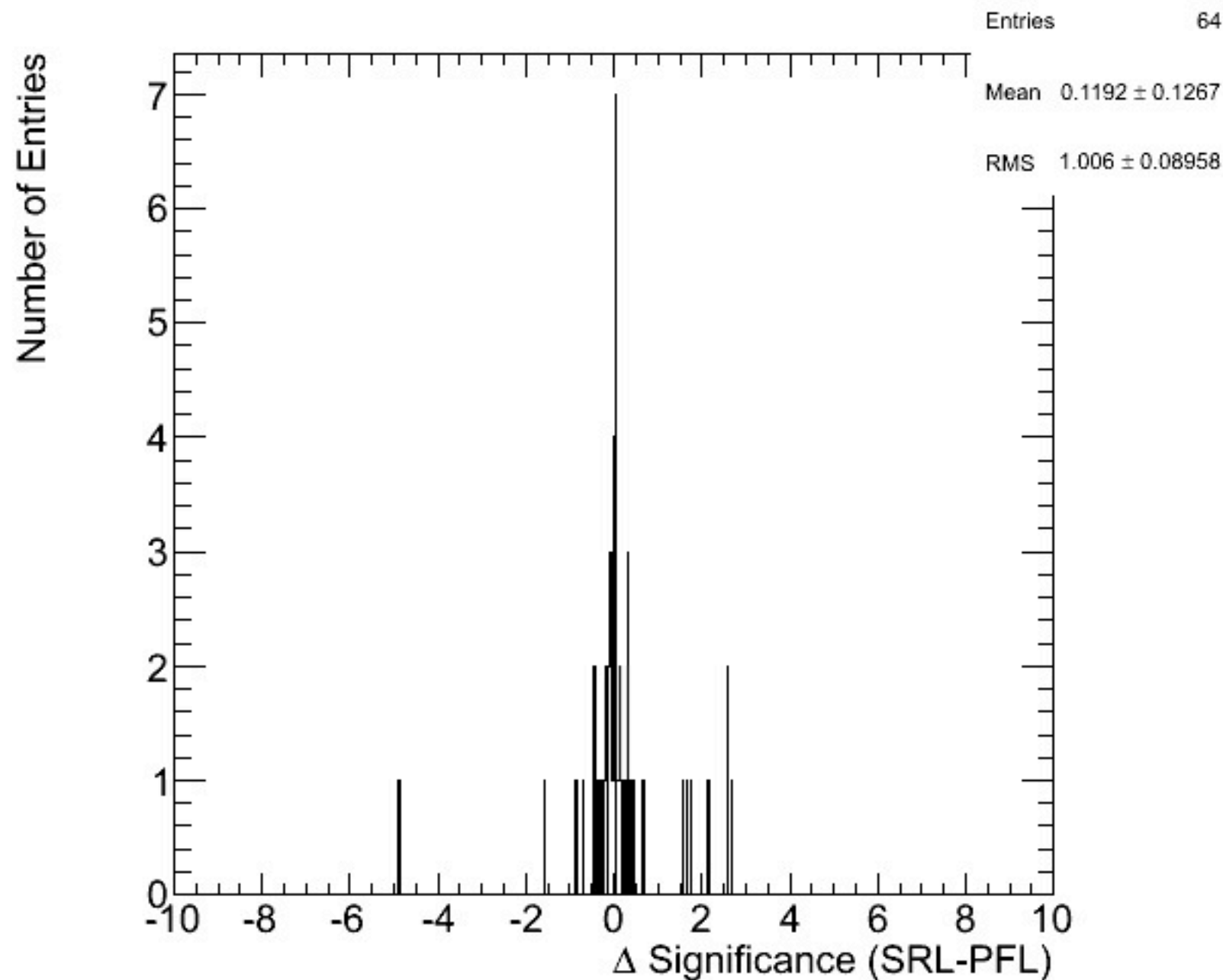
Same Sign Double Lepton

Sample	e e				mu mu				e mu			
SSDL	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2
LM0 SR SRL	1.51	2.21	2.32	2.34	3.49	4.38	6.61	8.36	3.82	7.85	10.24	11.58
LM0 SR PFL	1.88	1.51	1.64	1.64	3.84	3.7	5.33	6.5	3.99	4.96	6.63	7.45
LMI SR SRL	0.22	0.39	0.44	0.44	0.6	0.77	1.48	1.74	0.79	1.22	1.74	1.95
LMI SR PFL	0.32	0.29	0.33	0.33	0.67	0.67	1.18	1.39	0.84	1	1.39	1.52
BB SR SRL	0	0	0	0	0	0	0	0	0	0	0	0
BB SR PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 SR SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 SR PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 SR SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 SR PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 1000 SR SRL	0	0	0	0	0	0	0	0.023	0	0.0058	0.0058	0.011
QCD 1000 SR PFL	0	0	0	0	0	0	0	0.029	0	0.0058	0.0058	0.011
TTBar SR SRL	0.086	0.4	0.49	0.49	0.028	0.52	1.27	1.99	0.28	2.42	4.19	5.23
TTBar SR PFL	0.14	0.17	0.2	0.2	0.46	0.4	0.83	1.15	0.37	0.89	1.82	2.25
WJets SR SRL	0	0	0	0	0	0	0	0	0	0	0	6.65
WJets SR PFL	0	0	0	0	0	0	0	0	0	0	0	0
Sig LM0 SR SRL	5.149057263	3.494316814	3.314285714	3.342857143	20.85673923	6.073967149	5.865426527	5.892293754	7.219121434	5.040134904	4.999108553	3.358144423
Sig LM0 SR PFL	5.024511348	3.662287938	3.667151483	3.667151483	5.661771116	5.850213671	5.850435057	5.98627211	6.559519593	5.240541294	4.906670867	4.954570261
Sig LMI SR SRL	0.750193773	0.616644144	0.628571429	0.628571429	3.585685828	1.067797878	1.313287634	1.226386499	1.492959668	0.78330759	0.849457899	0.565490641
Sig LMI SR PFL	0.855235974	0.703353313	0.737902433	0.737902433	0.987861106	1.059363016	1.295218268	1.280141267	1.380951493	1.056560745	1.028698719	1.010865342

Opposite Sign Double Lepton

Sample	e e				mu mu				e mu			
OSDL	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2
LM0 SR SRL	8.61	12.34	12.76	12.78	18.55	22.29	28.38	31.12	13.50	21.05	26.04	27.9
LM0 SR PFL	10.67	9.48	9.81	9.81	13.64	12.69	15.93	17.25	14.43	16.41	19.3	20.33
LMI SR SRL	2.31	2.97	3.09	3.1	4.83	5.41	6.95	7.46	1.41	2.19	3.13	3.44
LMI SR PFL	2.9	2.52	2.61	2.61	3.84	3.58	4.62	4.93	1.48	1.75	2.51	2.73
BB SR SRL	0	0	0	0	0	0	0	0	0	0	0	0
BB SR PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 SR SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 SR PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 SR SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 SR PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 1000 SR SRL	0	0.0058	0.011	0.011	0	0	0.0058	0.088	0	0	0.0058	0.011
QCD 1000 SR PFL	0	0	0.0058	0.0058	0	0	0.0058	0.029	0	0	0.0058	0.011
TTBar SR SRL	11.39	14.14	14.34	14.34	6.88	8.64	10.15	11.04	21.72	28.72	32.04	33.84
TTBar SR PFL	12.58	8.5	8.64	8.64	6.36	5.46	6.36	6.76	21.54	19.81	21.52	22.3
WJets SR SRL	0	0	0	0	0	0	0	6.65	0	0	6.65	26.61
WJets SR PFL	0	0	0	0	0	0	0	6.65	0	0	0	0
Sig LM0 SR SRL	2.551181103	3.28096353	3.368290901	3.373570354	7.072121199	7.583211995	8.905438756	7.38070993	2.896702259	3.927895114	4.186094855	3.58811654
Sig LM0 SR PFL	3.00832047	3.251613174	3.336310136	3.336310136	5.408611815	5.43081865	6.313777613	4.705498317	3.109162934	3.686942319	4.159849884	4.304055477
Sig LMI SR SRL	0.684463223	0.789664642	0.815675461	0.818315188	1.841420237	1.840519376	2.180859738	1.769283293	0.302544458	0.408650371	0.503167316	0.442405767
Sig LMI SR PFL	0.817631618	0.864352869	0.887642146	0.887642146	1.522659045	1.532098563	1.831114411	1.34481778	0.318888506	0.393183977	0.540996021	0.577967115

Difference between Standard Reco Leptons Significance and Particle Flow Reco Significance



Particle Flow Jets and
MET
Standard Reco Leptons
vs
Particle Flow Leptons

Single Lepton

Sample	e				mu			
	V+j pt10	SL opt:pt10	SL opt:pt5	SL opt:pt2	V+j pt10	SL opt:pt10	SL opt:pt5	SL opt:pt2
LM0 PF SRL	68.74	86.79	88.88	89.08	114.018	134.702	161.907	174.345
LM0 PF PFL	83.32	74.76	76.58	76.68	104.646	100.804	120.829	129.541
LMI PF SRL	8.9	11.80	12.60	12.64	15.67	18.35	24.79	27.22
LMI PF PFL	10.87	10.56	11.31	11.34	14.52	15.13	20.45	22.37
BB PF SRL	0	0	0	0	0	0	0	0
BB PF PFL	0	0	0	0	0	0	0	0
QCD 250 PF SRL	0	0	0	0	0	0	0	0
QCD 250 PF PFL	0	0	0	0	0	0	0	0
QCD 500 PF SRL	0	3.43	3.43	3.43	0	0	10.30	13.73
QCD 500 PF PFL	0	0	0	0	0	0	10.3	17.16
QCD 1000 PF SRL	0.053	0.058	0.076	0.094	0.017	0.18	0.53	1.05
QCD 1000 PF PFL	0.076	0.07	0.082	0.088	0.06	0.094	0.39	0.73
TTBar PF SRL	36.35	47.09	47.98	48.01	59.03	66.9	75.23	77.75
TTBar PF PFL	41.07	37.31	38.12	38.15	54.03	52.09	58.83	60.85
VVjets PF SRL	73.20	86.51	86.51	86.51	206.302	219.612	252.612	259.541
VVjets PF PFL	73.2	66.54	66.54	66.54	206.302	199.647	232.921	239.57
Sig LM0 PF SRL	6.565961	7.41258981	7.5660777	7.58178458	6.9994625	7.95547759	8.79783838	9.29168268
Sig LM0 PF PFL	7.791818	7.33364231	7.4826414	7.49112514	6.4849826	6.35218548	6.94785664	7.26076037
Sig LMI PF SRL	0.850117	1.00781841	1.0725988	1.07581676	0.9619672	1.08374793	1.34705981	1.45068458
Sig LMI PF PFL	1.016527	1.03589169	1.1051015	1.10784245	0.8998141	0.95342016	1.17590701	1.25383631

Same Sign Double Lepton

Sample	e e				mu mu				e mu			
SSDL	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2
LM0 PF SRL	1.26	1.9	2.01	2.03	4.26	4.15	5.64	6.73	3.25	6.55	8.34	9.35
LM0 PF PFL	1.47	1.14	1.24	1.24	3.51	3.33	4.73	5.66	3.27	3.97	5.23	5.86
LMI PF SRL	0.21	0.37	0.4	0.4	0.76	0.8	1.38	1.59	0.71	1.13	1.6	1.79
LMI PF PFL	0.29	0.25	0.29	0.29	0.63	0.62	1.10	1.3	0.73	0.88	1.22	1.33
BB PF SRL	0	0	0	0	0	0	0	0	0	0	0	0
BB PF PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 PF SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 PF PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 PF SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 PF PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 1000 PF SRL	0	0	0	0	0	0	0	0.011	0	0	0	0.0058
QCD 1000 PF PFL	0	0	0	0	0	0	0	0.023	0	0	0	0.0058
TTBar PF SRL	0.028	0.086	0.086	0.086	0.11	0.28	0.72	0.98	0.057	0.98	1.7	1.99
TTBar PF PFL	0	0.028	0.028	0.028	0.28	0.28	0.57	0.78	0.028	0.34	0.78	0.89
WJets PF SRL	0	0	0	0	0	0	0	0	0	0	0	0
WJets PF PFL	0	0	0	0	0	0	0	0	0	0	0	0
Sig LM0 PF SRL	7.529940239	6.478946225	6.854043112	6.922242546	12.84438328	7.842762815	6.646803743	6.760490969	13.61275202	6.616499167	6.396488007	6.618401378
Sig LM0 PF PFL		6.812803073	7.410417378	7.410417378	6.633276501	6.293108476	6.265038049	6.316240507	19.54198776	6.80849383	5.921808889	6.191445964
Sig LMI PF SRL	1.25499004	1.261689528	1.363988679	1.363988679	2.291486219	1.511857892	1.626345597	1.597203661	2.973862749	1.141472375	1.227143982	1.267052242
Sig LMI PF PFL		1.494035762	1.733081484	1.733081484	1.19058809	1.171689866	1.456985593	1.450726618	4.362584424	1.509187549	1.381377982	1.40522579

Opposite Sign Double Lepton

Sample	e e				mu mu				e mu			
OSDL	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2	V+j pt10	opt:pt10	opt:pt5	opt:pt2
LM0 PF SRL	6.94	9.99	10.28	10.28	16.59	19.03	23.57	25.47	11.54	17.67	21.73	23.28
LM0 PF PFL	7.91	7.00	7.27	7.27	12.24	11.48	14.39	15.52	10.9	12.49	14.78	15.69
LMI PF SRL	2.02	2.63	2.74	2.74	4.57	4.9	6.21	6.61	1.27	2	2.85	3.14
LMI PF PFL	2.5	2.17	2.25	2.25	3.68	3.41	4.42	4.71	1.27	1.52	2.2	2.4
BB PF SRL	0	0	0	0	0	0	0	0	0	0	0	0
BB PF PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 PF SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 250 PF PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 PF SRL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 500 PF PFL	0	0	0	0	0	0	0	0	0	0	0	0
QCD 1000 PF SRL	0	0.0058	0.0058	0.0058	0	0	0.0058	0.035	0	0	0	0.0058
QCD 1000 PF PFL	0	0	0	0	0	0	0.0058	0.017	0	0	0	0
TTBar PF SRL	2.83	3.47	3.52	3.52	5.4	6.24	7.05	7.49	8.47	11.36	12.87	13.5
TTBar PF PFL	3.23	1.93	1.99	1.99	5.09	4.3	4.8	5.09	8.38	7.75	8.53	8.85
WJets PF SRL	0	0	0	0	0	0	0	6.65	6.65	6.65	6.65	6.65
WJets PF PFL	0	0	0	0	0	0	0	6.65	6.65	0	0	0
Sig LM0 PF SRL	4.12540179	5.358436627	5.47474982	5.47474982	7.139199302	7.618096917	8.873326286	6.764993929	2.967767764	4.163702518	4.918354404	5.185408268
Sig LM0 PF PFL	4.401241733	5.038710255	5.15356636	5.15356636	5.425284616	5.536147599	6.564141697	4.526301277	2.811557745	4.486540445	5.060575615	5.274135804
Sig LMI PF SRL	1.200765363	1.410679512	1.459223201	1.459223201	1.966614877	1.961569884	2.337859832	1.755658024	0.326608757	0.47127363	0.645067191	0.699406442
Sig LMI PF PFL	1.39103721	1.562000179	1.594982711	1.594982711	1.631131322	1.644448024	2.016226984	1.373639112	0.327585168	0.546000118	0.753265653	0.806751175

Difference between Standard Reco Leptons Significance and Particle Flow Reco Significance

